

Final Report

Final Report

Mercury Regulator Removal Action

DeKalb Iron & Metal Co.

900 Oak Street

DeKalb, Illinois

Prepared for: Nicor Gas

March 2001

By: James E. Huff, P.E. Sarah Monette, P.E. Lisa M. Paulson



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# **CERTIFICATION**

relevant persons involved in the preparation of	of my knowledge, after appropriate inquiries of all of this report, the information submitted is true,
accurate and complete.	3/24/2001
James E. Huff, P.E.	Date -
Vice President, Huff & Huff, Inc.  Title, Company	_
Signature Manette	03·23·0  Date
Sarah Monette, P.E.	-
Sr. Project Engineer, Huff & Huff, Inc.  Title, Company	-
Jusa M Paulson Signature	<u> 3-93・61</u>
Lisa M. Paulson Name	<del>-</del>
Environmental Scientist, Huff & Huff, Inc.  Title, Company	_
Richard Tappour	3/23/01 Date
Richard Tappan Name	_
Mgr. Environmental Affairs, Nicor Gas Title, Company	-

## 1. <u>INTRODUCTION</u>

# 1.1 Report Overview

This document presents the "Final Report" for the Nicor Gas cleanup activities at the DeKalb Iron & Metal Co. scrap yard (hereafter called "Scrap Yard"). The cleanup activities included removal of mercury-type regulators and soil testing.

The work was performed in accordance with the requirements of the "Administrative Order Pursuant to Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, Docket No. VW-00-C-610," issued by the United States Environmental Protection Agency (U.S. EPA) in September 2000, and the U.S. EPA-approved "Remedial Action Work Plan," dated October 2000.

### 1.2 Site Location and Layout

The Scrap Yard is located at 900 Oak Street in DeKalb, Illinois. Figure 1-1 depicts the site location and Figure 1-2 depicts the site layout, including the locations where Nicor Gas scrap metal had been accumulated. Note that the site is separated into an "East Yard" and a "West Yard."

Based on conversations with DeKalb Iron & Metal representatives, the facility historically segregated regulators from the main pile in the West Yard during initial scrap unloading. These regulators, both spring-loaded and mercury-type, were removed and transferred to bins in the East Yard. The mercury-type regulators were removed by Illinois EPA on September 7, 2000, according to the DeKalb Iron & Metal representatives.

According to Scrap Yard representatives, given the processing activities completed at the Scrap Yard, only the most recent two shipments of scrap metal from Nicor Gas's DeKalb Reporting Center (December 1999 and June 2000) likely were still present in the West Yard (minus any regulators segregated when initially received). These shipments were unloaded onto the south/southeast portion of the main pile.

The scrap pile areas depicted on Figure 1-2 were identified as the area where Nicor Gas scrap metal had been stored. These areas were identified by Illinois EPA and U.S. EPA as the only areas requiring a response under the 106(a) Order.

#### 1.3 Personnel

Key personnel associated with this project are:

Mr. Steven Faryan	On-Scene Coordinator	U.S. EPA
Ms. Claudia Macholz	Project Manager	Nicor Gas
Mr. James E. Huff, P.E.	Project Coordinator	Huff & Huff

Mr. Perre Krizanek Contractor Heritage Environmental Services

Mr. Jeff Gorman Scrap Yard President DeKalb Iron & Metal

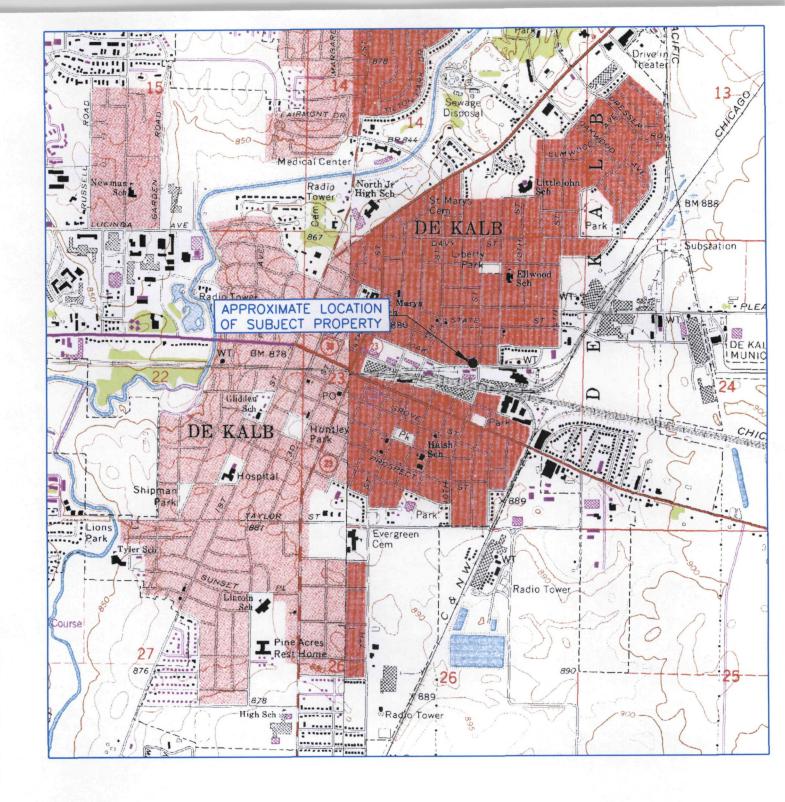


FIGURE 1-1
SITE LOCATION MAP
DEKALB IRON & METAL COMPANY
DEKALB, ILLINOIS

VORTH

2000' 0 2000'

SOURCE: UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY DEKALB & SYCAMORE, ILLINOIS QUADRANGLES

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# 1.4 Schedule

The Section 106(a) Order was issued in September 2000. Work was performed at the Scrap Yard on October 18, 2000; work was completed in one day. This time frame is in accordance with the U.S. EPA-approved schedule. (Work activities are detailed in Section 2.)

### 2. WORK ACTIVITIES

#### 2.1 Overview

Work activities were performed in general compliance with the U.S. EPA approved site work plan ("Removal Action Work Plan, October 2000"). Field changes to the approved site work plan were made as directed by the U.S. EPA On-Scene Coordinator.

#### Work activities included:

- scrap metal sorting (to segregate mercury-type regulators), including random inspection of large scrap pile in West Yard
- soil sampling (to determine potential mercury impacts to underlying soil)
- material removal (including mercury-type regulators, scrap metal, and debris)
- air monitoring (to assess mercury levels in ambient air)

Site photographs and the ambient air monitoring log are presented in Appendices A and B, respectively. Waste manifests and shipping papers are provided in Appendix C.

# 2.2 Material Sorting and Removal

Huff & Huff (James Huff, Lisa Paulson, Darren Greving and Jose Gonzalez) mobilized to the site on October 18, 2000, with the contractor, Heritage Environmental Service. DeKalb Iron & Metal provided a magnetic crane and operator. The U.S. EPA On-Scene Coordinator, Steve Faryan, was present along with the U.S. EPA contractor, Ecology & Environment. Sorting and removal of the Nicor Gas scrap began at 9:15 AM in the West Yard. Simultaneously, the regulator bins in the East Yard were hand sorted, with all spring-type regulators placed in a rolloff box. By 12:20 PM, all sorting activities were completed.

The following table summarizes the material removed from the site, the classification of each waste stream, and the destination to which it was sent.

Material	Quantity	Waste Type	Destination
Mercury-Type Regulators and Personal Protective Equipment (PPE)		High-Level Hg Hazardous Waste	To Superior Special Services Via Heritage (Lemont)
Scrap Metal and Debris	3 Roll-Off Boxes	Non-Hazardous Waste	To Newton County Landfill

### 2.3 Scrap Pile Investigation

Upon completion of Nicor Gas scrap removal from the large scrap pile in the West Yard, mercury vapor readings were taken around the perimeter of the scrap pile. This was accomplished by

laying plastic sheeting over sections of the pile and using a Jerome Mercury Vapor Analyzer (Jerome Meter) to read mercury levels. All of the readings were 0.000 mg/cu m.

After this mercury vapor screening was complete, a magnetic crane was used to sort through the scrap looking for evidence of Nicor Gas scrap (e.g., regulators or plastic wrapped piping). This investigation continued until the U.S. EPA On-site Contractor was satisfied that no other Nicor Gas scrap was present. No evidence of any additional Nicor Gas scrap was found during this investigation phase.

### 2.4 Soil Sampling

# 2.4.1 <u>Screening and Sampling Locations</u>

Soil beneath the identified scrap piles was evaluated after all scrap metal (West Yard) and regulator bins (East Yard) were removed. The evaluation included screening for mercury vapor with a Jerome Meter and laboratory analysis of mercury (total and TCLP).

The areas were divided into grids of 10 feet by 10 feet squares, as depicted on Figure 1-2. Soils at each grid point were screened with the Jerome Meter (closed-cup headspace method). All grid point readings were less than 0.010 mg/cu m mercury. Table 2-1 presents the Jerome Meter readings.

In addition, soil samples were collected for laboratory analysis. Two soil sample were collected from the West Yard and one sample was collected from the East Yard. (All Jerome Meter readings were 0.000 mg/cu m in the East Yard).

The selected soil samples were analyzed for mercury (total and TCLP) and pH at Test America Laboratories in Bartlett, Illinois. The total mercury results range from 0.2 mg/kg to 4.4 mg/kg. TCLP mercury results were all reported as less than 0.0002 mg/L. Copies of the laboratory analytical reports are provided in Appendix D.

### 2.4.2 Soil Sampling Results

Tables 2-2 through 2-4 present the soil sample results in comparison to the U.S. EPA-approved cleanup objectives. These objectives are the most conservative Illinois "Tier 1" cleanup objectives for residential properties. Each of the three Tier 1 exposure pathways is considered: soil component of groundwater ingestion, soil ingestion, and inhalation.

• Soil Component of Groundwater Ingestion (Class I)

The Tier 1 objective for the soil component of Class I groundwater ingestion pathway is 0.002 mg/L TCLP mercury. TCLP mercury was not detected in any sample; all results were less than 0.0002 mg/L (see Table 2-2).

## Soil Ingestion

The Tier 1 objective for the soil ingestion pathway is 23 mg/kg total mercury for residential exposure. All sample results achieve the objectives; the highest total mercury result is 4.4 mg/kg at C2 (see Table 2-3). (The ingestion objectives for industrial/commercial and construction worker exposure are 610 mg/kg and 61 mg/kg respectively. Both of these objectives were also achieved.).

#### Inhalation

The Tier 1 objective for the inhalation pathway is 10 mg/kg total mercury for residential exposure. All sample results achieve the objectives; the highest total mercury result is 4.4 mg/kg at C2 (see Table 2-4). (The ingestion objectives for industrial/commercial and construction worker exposure are 540,000 mg/kg and 52,000 mg/kg respectively. Both of these objectives were also achieved.).

Based upon these confirmation sample results, all soils achieve the applicable Tier 1 cleanup objectives for residential properties. No further remedial efforts are required.

#### 2.5 Air Monitoring

A Jerome Meter was used to measure ambient air levels in the West Yard work area during sorting activities. The mercury levels in the ambient air were measured at the four sides and the most active portion of the exclusion zone during work activities. All mercury vapor readings were 0.000 mg/cu m. Based upon these readings, all work was performed in Level D PPE. The Log Sheet of the air monitoring readings is included in Appendix B.

TABLE 2-1 DEKALB IRON & METAL CO. JEROME METER READINGS  $^{\mathrm{a}\prime}$ 

	Depth	Hg Reading
Location	inches, bgs	mg/m <sup>3</sup>
A1 East Yard	0-6	$0.000^{-b/}$
A2 East Yard	0-6	0.000
B1 East Yard	0-6	0.000
B2 East Yard	0-6	0.000
C1 West Yard	0-6	0.003
C2 West Yard	0-6	0.000 b/
D1 West Yard	0-6	$0.000^{\mathbf{b}/}$
D2 West Yard	0-6	0.000

a/ Samples placed in sealed baggies, half full, and the head space mercury vapor reading was taken after 15 minutes.

b/ Sample analyzed by laboratory.

C:\IDOC\Nicor\Mercury\DeKalb\[Jerome Readings.xls]Sheet1

TABLE 2-2 DEKALB IRON & METAL CO.

TIER 1 COMPARISON: SOIL COMPONENT of GROUNDWATER INGESTION

Location	Date	Depth, inches bgs	TCLP Hg, mg/L
Tier 1 Objective			0.0020
A1 East Yard	10/18/00	0-6	<0.0002
C2 West Yard	10/18/00	0-6	< 0.0002
D1 West Yard	10/18/00	0-6	< 0.0002

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# TABLE 2-3 DEKALB IRON & METAL CO.

# TIER 1 COMPARISON: SOIL INGESTION

Location	Date	Depth, inches bgs	Total Hg, mg/kg
Tier 1 Objective Residential			23.0
A1 East Yard	10/18/00	0-6	0.2
C2 West Yard	10/18/00	0-6	4.4
D1 West Yard	10/18/00	0-6	3.5

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TABLE 2-4
DEKALB IRON & METAL CO.

# TIER 1 COMPARISON: INHALATION

Location	Date	Depth, inches bgs	Total Hg, mg/kg
Tier 1 Objective Residential			10.0
A1 East Yard	10/18/00	0-6	0.2
C2 West Yard	10/18/00	0-6	4.4
D1 West Yard	10/18/00	0-6	3.5
			,

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# 3. COSTS

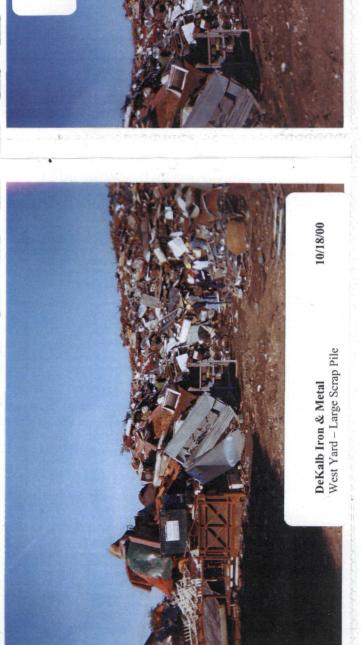
The Section 106(a) Order requires that Nicor Gas prepare a good faith estimate of the total costs incurred in complying with the Order. Nicor Gas estimates that approximately \$24,166 has been spent for closure of the DeKalb Scrap Yard.

# The cost breakdown is as follows:

Engineering Oversite (including report preparation)\$	9,170
Contractor (Heritage)\$	
Analytical\$	
Waste Transportation and Disposal	,
Hazardous Waste\$	650 <sup>b</sup>
Non-Hazardous Waste\$	

<sup>&</sup>lt;sup>a</sup> Costs through 12/31/01.

b Estimated value based upon 6 regulators @ \$25/regulator + \$500 pickup and handling.





10/18/00









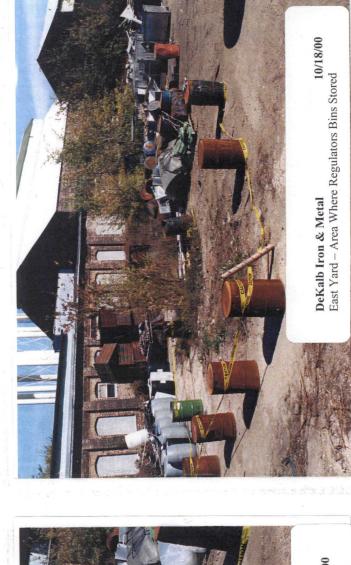
West Yard - Sorting Area for Nicor Scrap (Only One

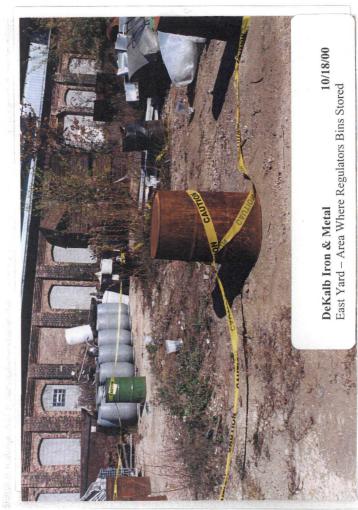
DeKalb Iron & Metal

Box for Hg-Regulators Used)



10/18/00





#### JERU METER

# AMBIENT AIR SAMPLING FIELD LOG

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Project Number: Date: 10-14-00

Sampler: L P

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Ms. Lisa Paulson HUFF & HUFF INC.

512 West Burlington

Suite 100

LaGrange, IL 60525

10/26/2000

Job Number: 00.11629

IEPA Cert. No.: 100221 WDNR Cert. No.: 999447130

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of TestAmerica for analysis.

Project Description: Nicor; Dekalb Iron & Metal

Sample	Sample Description	Date	Date
Number		Taken	Received
603082 C 603083 D 603084 A 603085 T	Al East Yard C2 West Yard Ol West Yard Al East Yard - Dup Crip Blank Field Blank	10/18/2000 10/18/2000 10/18/2000 10/18/2000 10/18/2000 10/18/2000	10/19/2000 10/19/2000 10/19/2000 10/19/2000 10/19/2000 10/19/2000

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow TestAmerica Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. TestAmerica has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Project Manager

Page 1 of 9



Ms. Lisa Paulson 10/26/2000

HUFF & HUFF INC. 512 West Burlington Sample No. : 603081

Suite 100

Job No.: 00.11629 LaGrange, IL 60525

Sample Description: Al East Yard

Nicor; Dekalb Iron & Metal

Date Received: 10/19/2000 Time Received: 14:55 Date Taken: 10/18/2000

Time Taken: 12:35

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
pH, Non-Aqueous	8.21		units	0.10	10/23/2000	kmt	SW 9045B
Solids, Total	90.4		%	0.1	10/25/2000	kmt	SM 2540
TCLP Metals Extraction	Leached				10/23/2000	kkp	SW 1311
Mercury, CVAA	0.22		mg/kg dw	0.044	10/23/2000	efw2	SW 7471A
TCLP-Mercury, CVAA	<0.0002		mg/L	0.0002	10/24/2000	efw2	SW 7470A



Ms. Lisa Paulson 10/26/2000

HUFF & HUFF INC. 512 West Burlington Sample No. : 603082

Suite 100

LaGrange, IL 60525 Job No.: 00.11629

Sample Description: C2 West Yard

Nicor; Dekalb Iron & Metal

Date Received: 10/19/2000 Time Received: 14:55

Date Taken: 10/18/2000 Time Taken:

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
pH, Non-Aqueous	7.86		units	0.10	10/23/2000	kmt	SW 9045B
Solids, Total	78.7		ole .	0.1	10/25/2000	kmt	SM 2540
TCLP Metals Extraction	Leached				10/23/2000	kkp	SW 1311
Mercury, CVAA	4.4		mg/kg dw	0.051	10/23/2000	efw2	SW 7471A
TCLP-Mercury, CVAA	<0.0002		mg/L	0.0002	10/24/2000	efw2	SW 7470A



10/26/2000 Ms. Lisa Paulson

HUFF & HUFF INC. 512 West Burlington Sample No. : 603083

Suite 100

LaGrange, IL 60525 Job No.: 00.11629

Sample Description: D1 West Yard

Nicor; Dekalb Iron & Metal

Date Received: 10/19/2000 Time Received: 14:55

Date Taken: 10/18/2000 Time Taken: 15:40

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
pH, Non-Aqueous	8.09		units	0.10	10/23/2000	kmt	SW 9045B
Solids, Total	88.6		%	0.1	10/25/2000	kmt	SM 2540
TCLP Metals Extraction	Leached				10/23/2000	kkp	SW 1311
Mercury, CVAA	3.5		mg/kg dw	0.045	10/23/2000	efw2	SW 7471A
TCLP-Mercury, CVAA	<0.0002		mg/L	0.0002	10/24/2000	efw2	SW 7470A



Ms. Lisa Paulson HUFF & HUFF INC.

512 West Burlington

Suite 100

LaGrange, IL 60525

10/26/2000

Sample No. : 603084

Job No.: 00.11629

Sample Description: A1 East Yard - Dup

Nicor; Dekalb Iron & Metal

Date Taken: 10/18/2000 Time Taken: 12:35

Date Received: 10/19/2000 Time Received: 14:55

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total Mercury, CVAA	90.1	ΜX	% mg/kg dw	0.1 0.044	10/25/2000 10/23/2000	kmt efw2	SM 2540 SW 7471A

MX : Dilution required due to sample matrix; analyte is not detected.



10/26/2000 Ms. Lisa Paulson HUFF & HUFF INC.

512 West Burlington Sample No. : 603085

Suite 100

LaGrange, IL 60525 Job No.: 00.11629

Sample Description: Trip Blank

Nicor; Dekalb Iron & Metal

Date Received: 10/19/2000 Time Received: 14:55 Date Taken: 10/18/2000

Time Taken:

Reporting Date Analyst Analytical Limit Analyzed Initials Method Parameter Result Flag Units Reporting Date mg/L 0.0002 10/24/2000 efw2 EPA 245.1 Mercury, CVAA <0.0002



10/26/2000 Ms. Lisa Paulson

HUFF & HUFF INC. 512 West Burlington Sample No. : 603086

Suite 100

Job No.: 00.11629 LaGrange, IL 60525

Sample Description: Field Blank

Nicor; Dekalb Iron & Metal

Date Received: 10/19/2000 Time Received: 14:55 Date Taken: 10/18/2000

Time Taken:

Reporting Date Analyst Analytical Limit Analyzed Initials Method Result Flag Units Reporting Date Parameter 0.0002 10/24/2000 efw2 EPA 245.1 Mercury, CVAA <0.0002 mg/L



Ms. Lisa Paulson HUFF & HUFF INC. 512 West Burlington Suite 100 LaGrange, IL 60525 10/26/2000

Job Number: 00.11629

IEPA Cert. No.: 100221 WDNR Cert. No.: 999447130

Project Description: Nicor; Dekalb Iron & Metal

#### CASE NARRATIVE

No analytical exceptions were noted outside of routine method protocols.

Page 8 of 9



#### KEY TO ABBREVIATIONS and METHOD REFERENCES

<	: Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	: Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	: Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	: Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	: Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surr:	: These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements
ક	: Percent; To convert ppm to %, divide the result by 10,000.  To convert % to ppm, multiply the result by 10,000.
ICP	: Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	: Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	: Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL Method Referen	: Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
(1)	Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.
(2)	ASTM "American Society for Testing Materials"
(3)	Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.
(4)	See "Standard Methods for the Examination of Water and Wastewater", 17th Ed. APHA, 1989.
(5)	Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.
(6)	Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.
(7)	See "Methods for the Determination of Metals in Environmental Samples", Supplement I $EPA-600/R-94/111$ , May 1994.
(8)	See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.
(9)	Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986, Including Updates I and II.
(10)	This method is from the 2nd Edition of "Test Methods for Evaluating Solid Waste", USEPA SW-846. It has been dropped from the 3rd Edition, 1986.

Right To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes? State: B B B John (6 4700 152 (Ser) Compliance Monitoring Je fo 16 ノるニソ FAF Analyze For: Report To: Project Name: Site/Location ID: Invoice To: Project #: Quote #: Preservation & # of Container: Phone: 630-289-3100 Fax: 630-289-5445 Fax 708-5 40525 むコニンとへもこ (E) Matrix Bartlett Division 850 West Bartlett Road Bartlett, IL 60103 276-579-5946 Octulisan -Client Name Huff + Huff かつにいとうか Backs Arres" Test/America Address: 512 City/State/Zip Code: Project Manager: Telephone Number: Sampler Name: (Print Name) Sampler Signature:

QC Deliverables Level 4 (Batch QC) Level 3 Level 2 REMARKS None Other: LABORATORY COMMENTS. Rec Lab Temp: # [\_\_\_\_\_\_ Custody Seals: Time/C/C/ Other (Specify) JOUG lonsrital HOP ЮŁ EON! Specify Other pijos/ijos - s St. - Sludge DW - Drinking Water benettiii blei-S = Grab, C = CompositeT J G 1747 ジイズアご 10-11-Date Sampled Rush (surcharges may apply) 00-26-01 Date Needed: 10-25-00 Fax Results: (Y) N blant 12/01 Fusten Special Instructions: West 4/85 Relinquished By: Standard SAMPLE ID  $\frac{\overline{v}}{L}$ 

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